

APPENDIX I

Graphs and Statistical Analysis of House Dust Concentrations

Appendix I

Graphs and Statistical Analysis of House Dust Concentrations

The graphs and statistical summaries in this appendix provide a comparison of indoor concentrations of metals in house dust collected from vacuum bags and floor mats with respect to outdoor metal concentrations in yard soil. The scatter plots of house dust versus soil indicate no clear relationship between concentrations in house dust and yard soil, i.e., as concentrations in soil go up, concentrations in dust do not necessarily increase and vice versa. The results of the paired t-test of the log transformed data reveal that concentrations of antimony, arsenic, cadmium, and zinc all showed a statistically significant enrichment in floor mat dust when compared to outdoor soil. All but arsenic also showed an enrichment, though not as great, in vacuum bag dust.

t-Test: Paired Two Sample for Means

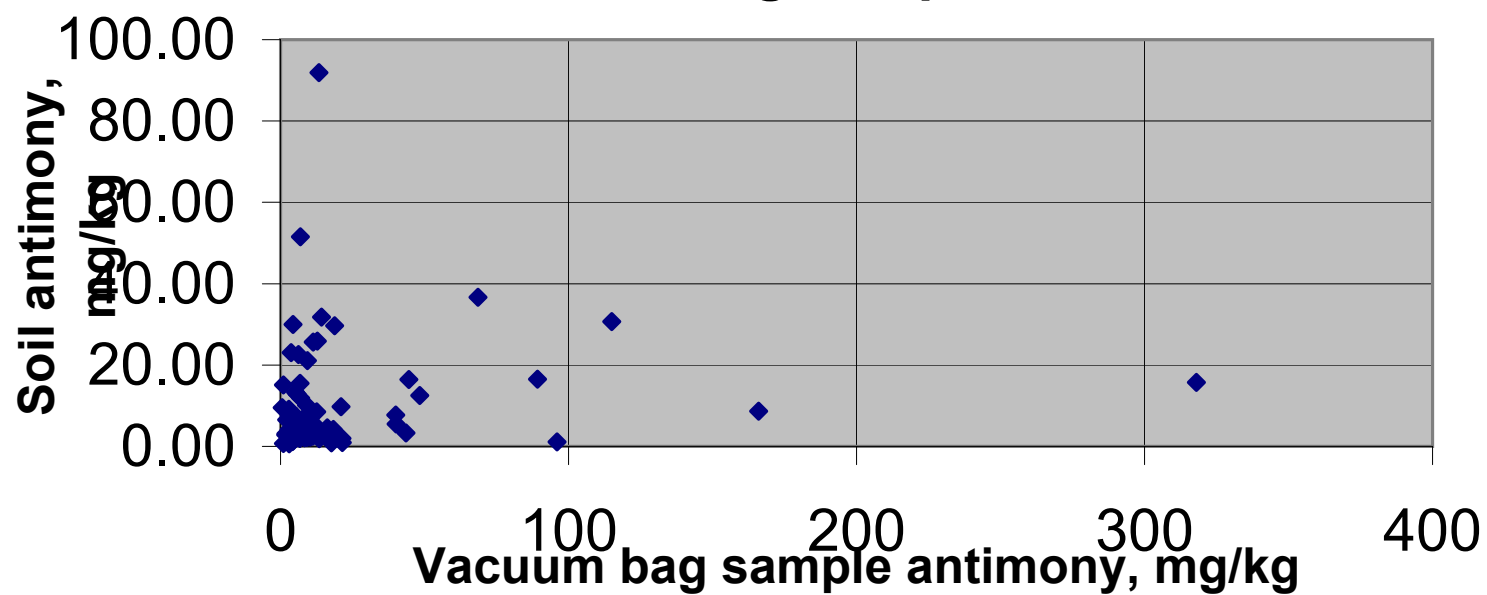
Antimony

	<i>In Mat</i>	<i>In Surface Soil</i>
Mean	2.518513	1.806210457
Variance	1.228555	1.150192781
Observations	84	84
Pearson Correlation	0.336065	
Hypothesized Mean Difference	0	
df	83	
t Stat	5.194065	
P(T<=t) one-tail	7.21E-07	
t Critical one-tail	1.66342	
P(T<=t) two-tail	1.44E-06	
t Critical two-tail	1.98896	

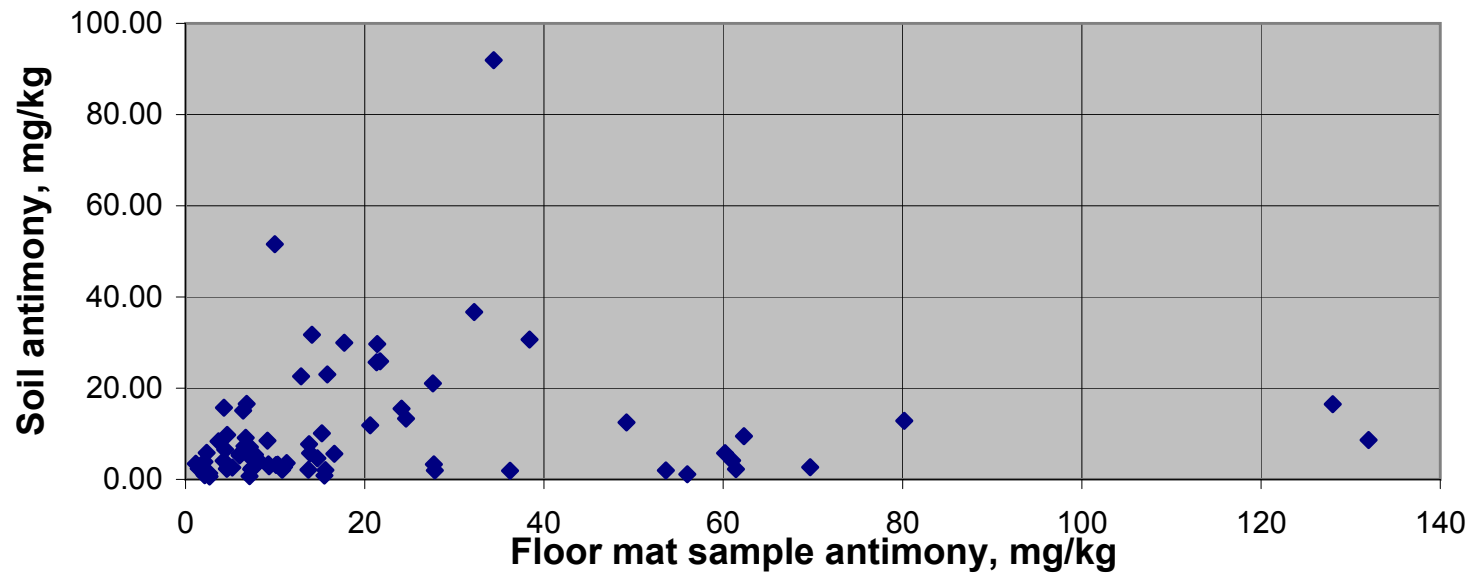
	<i>In Vacuum</i>	<i>In Surface Soil</i>
Mean	2.221587	1.745511778
Variance	1.365775	1.169785913
Observations	75	75
Pearson Correlation	0.212224	
Hypothesized Mean Difference	0	
df	74	
t Stat	2.916039	
P(T<=t) one-tail	0.002345	
t Critical one-tail	1.665708	
P(T<=t) two-tail	0.004689	
t Critical two-tail	1.992544	

	<i>In Mat</i>	<i>In Vacuum</i>
Mean	2.500864	2.221587468
Variance	1.128531	1.365774845
Observations	75	75
Pearson Correlation	0.339615	
Hypothesized Mean Difference	0	
df	74	
t Stat	1.882288	
P(T<=t) one-tail	0.031864	
t Critical one-tail	1.665708	
P(T<=t) two-tail	0.063728	
t Critical two-tail	1.992544	

Relationship of antimony in soil and vacuum bag samples



Relationship of antimony in soil and floor mat samples



t-Test: Paired Two Sample for Means

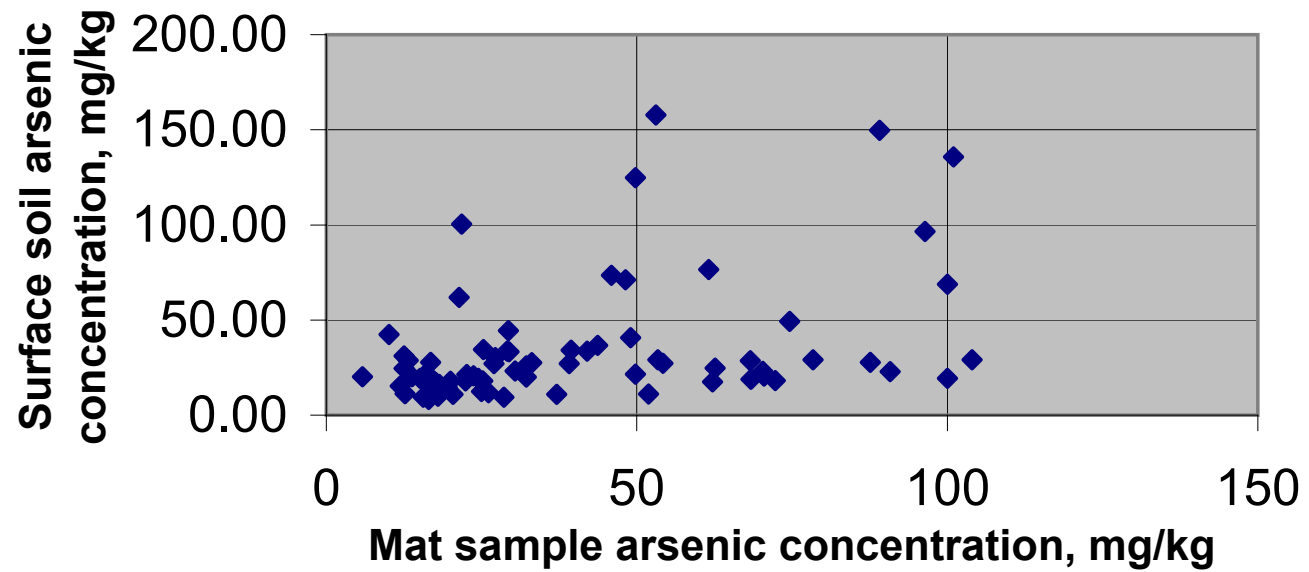
Arsenic

	<i>Mat</i>	<i>Surface Soil</i>
Mean	3.493219	3.305739964
Variance	0.454322	0.439358813
Observations	83	83
Pearson Correlation	0.425679	
Hypothesized Mean Difference	0	
df	82	
t Stat	2.38397	
P(T<=t) one-tail	0.009718	
t Critical one-tail	1.663648	
P(T<=t) two-tail	0.019437	
t Critical two-tail	1.98932	

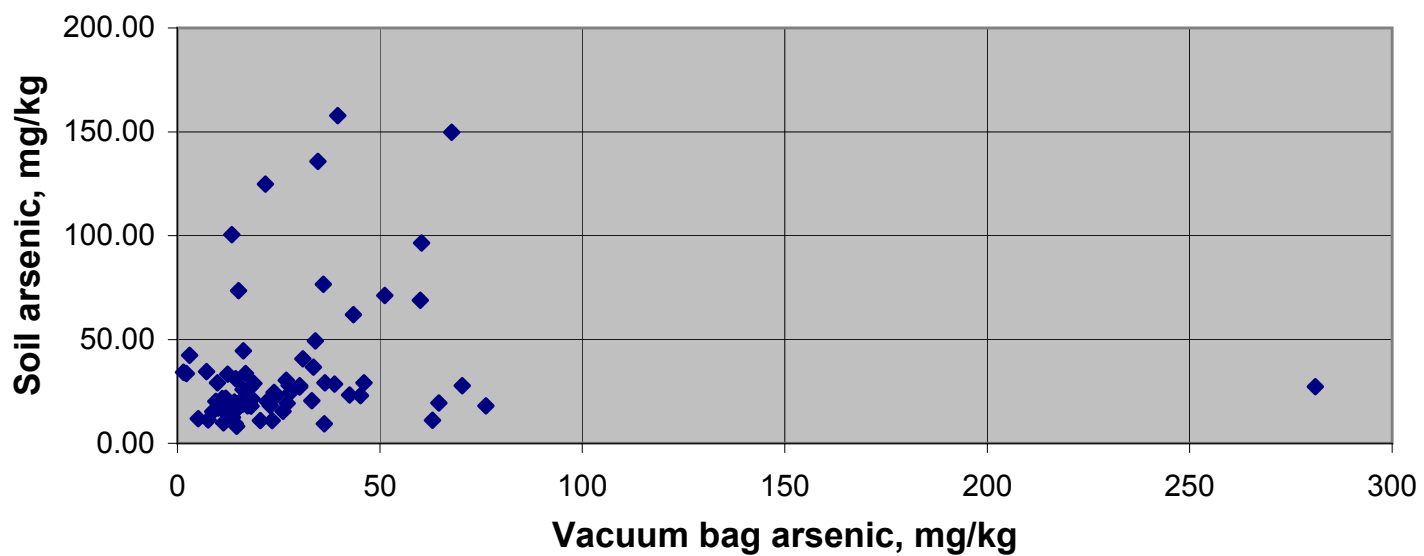
	<i>Vacuum</i>	<i>Surface Soil</i>
Mean	3.030311	3.278075442
Variance	0.671703	0.457555357
Observations	74	74
Pearson Correlation	0.231728	
Hypothesized Mean Difference	0	
df	73	
t Stat	-2.282	
P(T<=t) one-tail	0.012703	
t Critical one-tail	1.665996	
P(T<=t) two-tail	0.025406	
t Critical two-tail	1.992998	

	<i>Mat</i>	<i>Vacuum</i>
Mean	3.482601	3.030310991
Variance	0.454625	0.671702585
Observations	74	74
Pearson Correlation	0.447162	
Hypothesized Mean Difference	0	
df	73	
t Stat	4.893658	
P(T<=t) one-tail	2.87E-06	
t Critical one-tail	1.665996	
P(T<=t) two-tail	5.74E-06	
t Critical two-tail	1.992998	

Relationship of arsenic in soil and mat samples



Relationship of arsenic in soil and vacuum bag samples



t-Test: Paired Two Sample for Means

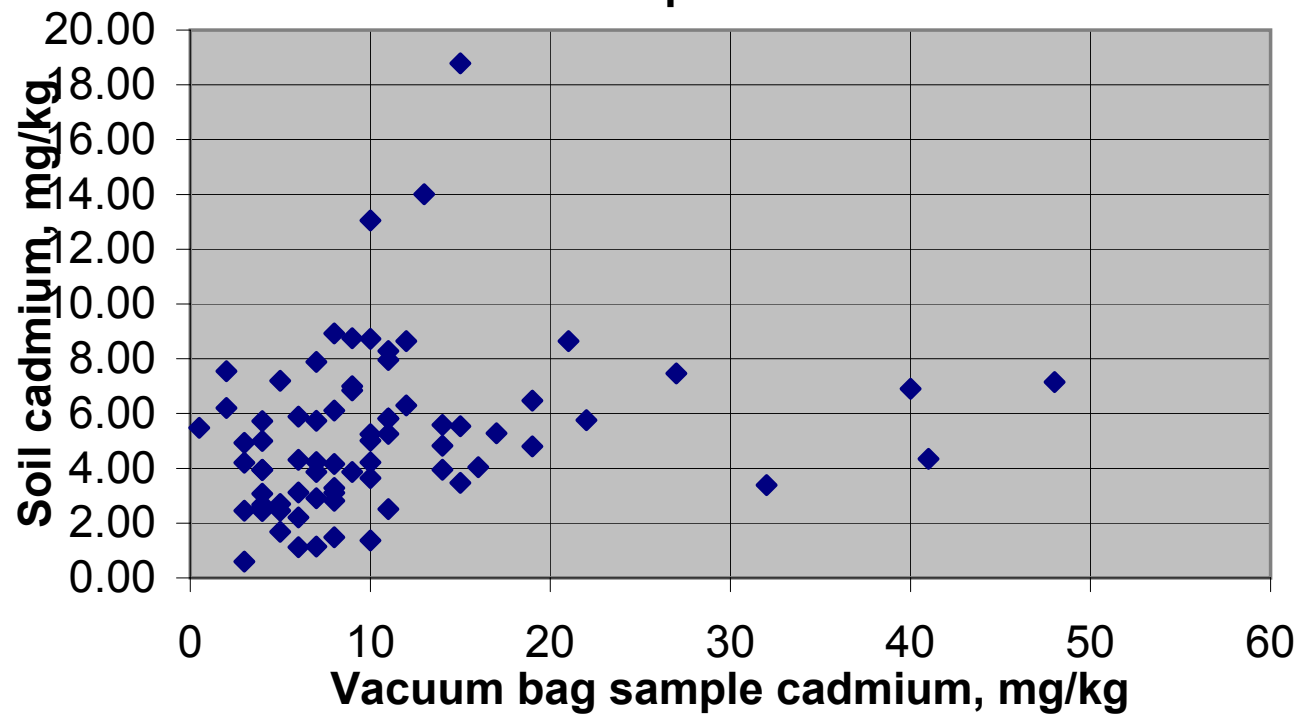
Cadmium

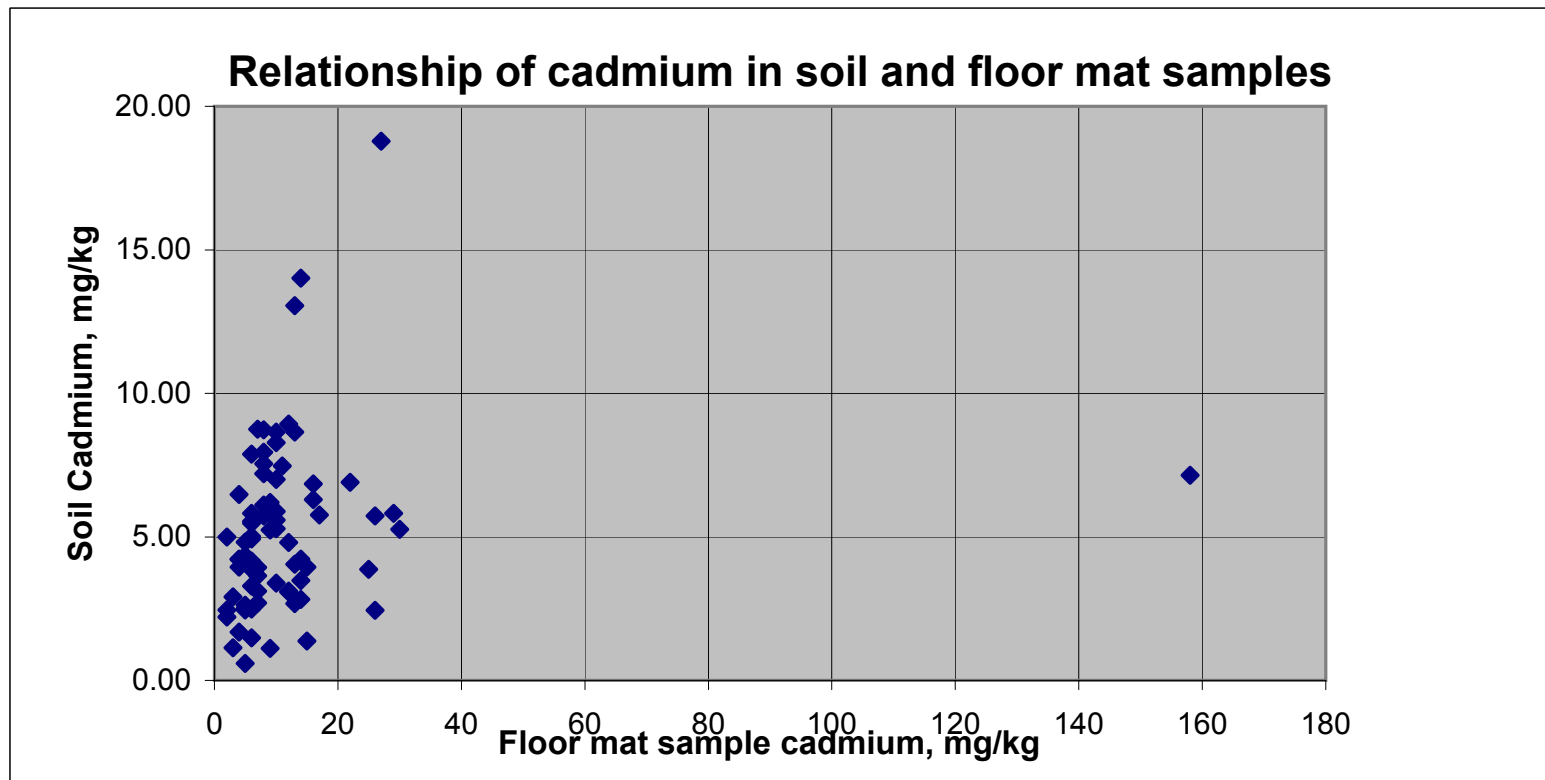
	<i>In Mat</i>	<i>In Surface Soil</i>
Mean	2.159283	1.535999983
Variance	0.475045	0.368972724
Observations	83	83
Pearson Correlation	0.349041	
Hypothesized Mean Difference	0	
df	82	
t Stat	7.644527	
P(T<=t) one-tail	1.76E-11	
t Critical one-tail	1.663648	
P(T<=t) two-tail	3.52E-11	
t Critical two-tail	1.98932	

	<i>In Vacuum</i>	<i>In Surface Soil</i>
Mean	2.103044	1.486563745
Variance	0.555945	0.353927022
Observations	75	75
Pearson Correlation	0.29902	
Hypothesized Mean Difference	0	
df	74	
t Stat	6.649771	
P(T<=t) one-tail	2.19E-09	
t Critical one-tail	1.665708	
P(T<=t) two-tail	4.39E-09	
t Critical two-tail	1.992544	

	<i>In Mat</i>	<i>In Vacuum</i>
Mean	2.160008	2.103043564
Variance	0.495938	0.555945433
Observations	75	75
Pearson Correlation	0.412523	
Hypothesized Mean Difference	0	
df	74	
t Stat	0.627202	
P(T<=t) one-tail	0.266229	
t Critical one-tail	1.665708	
P(T<=t) two-tail	0.532458	
t Critical two-tail	1.992544	

Relationship of cadmium in soil and vacuum bag samples





t-Test: Paired Two Sample for Means

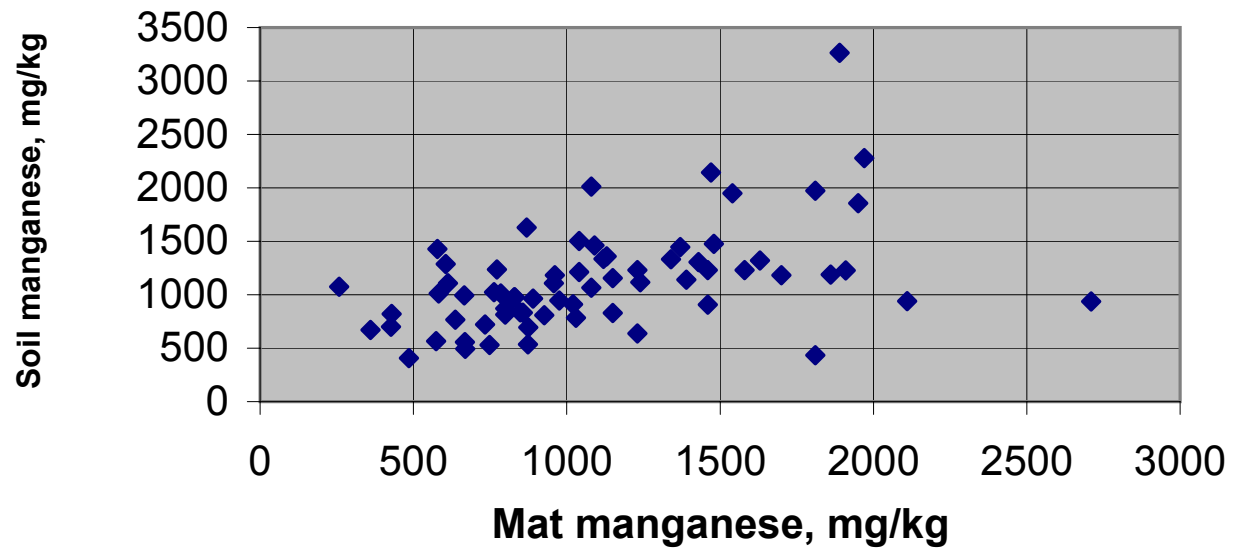
Manganese

	<i>Mat</i>	<i>Surface Soil</i>
Mean	6.947894	6.979135489
Variance	0.241356	0.173828249
Observations	75	75
Pearson Correlation	0.553579	
Hypothesized Mean Difference	0	
df	74	
t Stat	-0.62332	
P(T<=t) one-tail	0.267494	
t Critical one-tail	1.665708	
P(T<=t) two-tail	0.534988	
t Critical two-tail	1.992544	

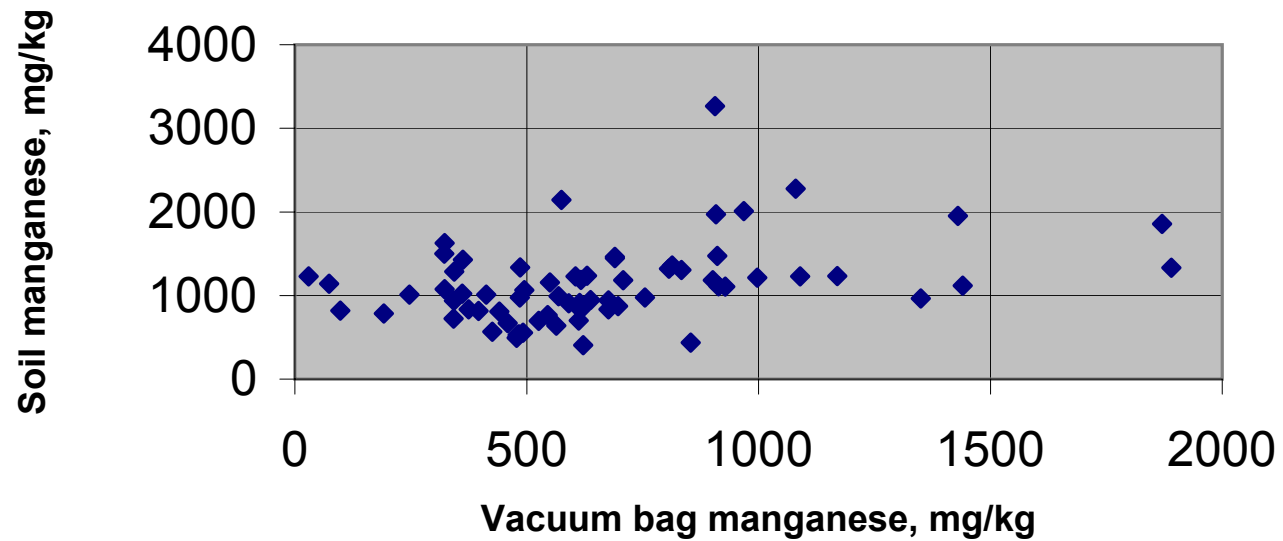
	<i>Vacuum</i>	<i>Surface Soil</i>
Mean	6.325727	6.951868085
Variance	0.451097	0.160386613
Observations	68	68
Pearson Correlation	0.237306	
Hypothesized Mean Difference	0	
df	67	
t Stat	-7.42307	
P(T<=t) one-tail	1.32E-10	
t Critical one-tail	1.667916	
P(T<=t) two-tail	2.64E-10	
t Critical two-tail	1.996009	

	<i>Mat</i>	<i>Vacuum</i>
Mean	6.909371	6.325727424
Variance	0.210866	0.451096564
Observations	68	68
Pearson Correlation	0.251402	
Hypothesized Mean Difference	0	
df	67	
t Stat	6.759979	
P(T<=t) one-tail	2.03E-09	
t Critical one-tail	1.667916	
P(T<=t) two-tail	4.06E-09	
t Critical two-tail	1.996009	

Relationship of manganese in soil and mat samples



Relationship between manganese in soil and vacuum bags



t-Test: Paired Two Sample for Means

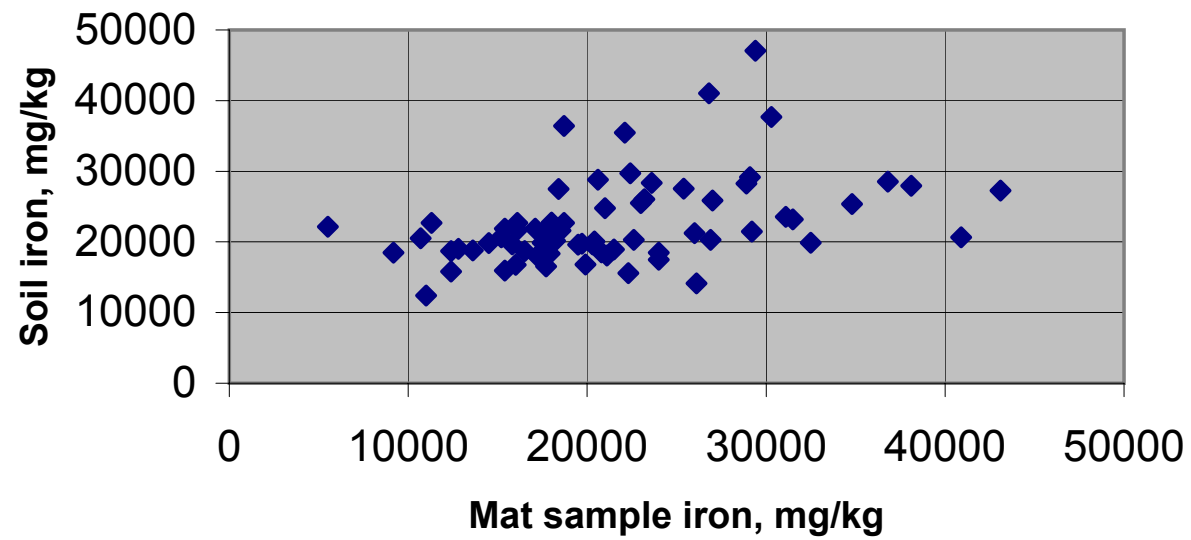
Iron

	<i>Mat</i>	<i>Surface Soil</i>
Mean	9.958137	10.0186782
Variance	0.161813	0.070137615
Observations	75	75
Pearson Correlation	0.488109	
Hypothesized Mean Difference	0	
df	74	
t Stat	-1.46574	
P(T<=t) one-tail	0.073478	
t Critical one-tail	1.665708	
P(T<=t) two-tail	0.146955	
t Critical two-tail	1.992544	

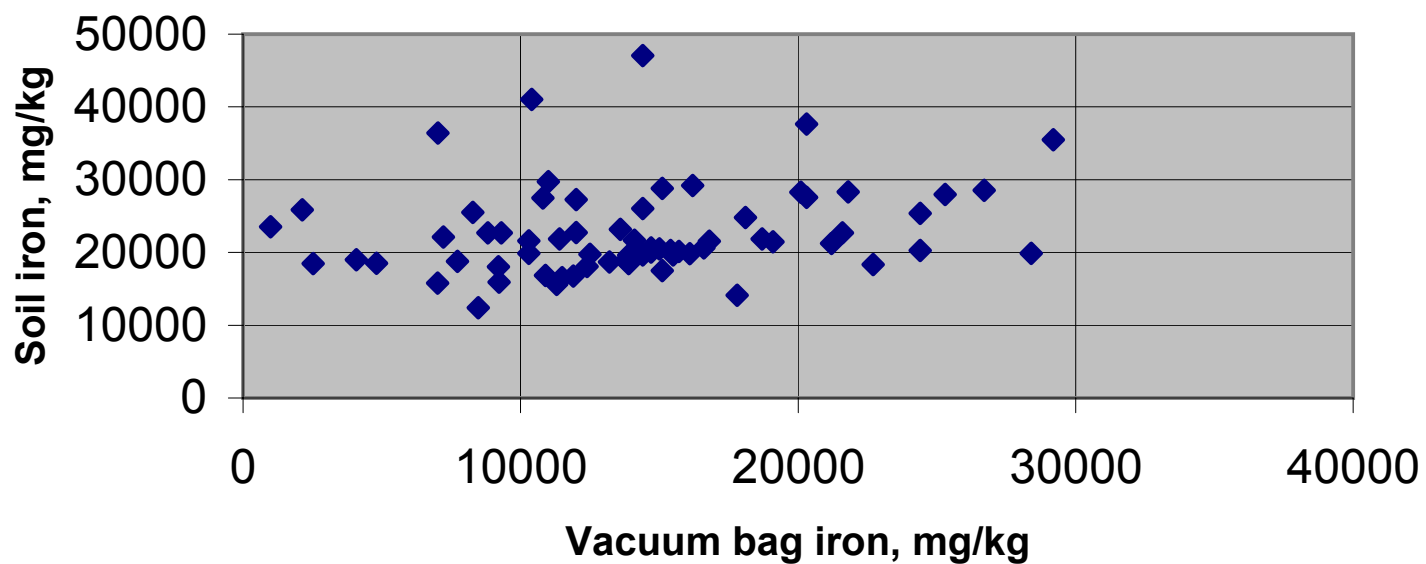
	<i>Vacuum</i>	<i>Surface Soil</i>
Mean	9.430674	9.999384489
Variance	0.343363	0.061023392
Observations	68	68
Pearson Correlation	0.150917	
Hypothesized Mean Difference	0	
df	67	
t Stat	-7.80864	
P(T<=t) one-tail	2.66E-11	
t Critical one-tail	1.667916	
P(T<=t) two-tail	5.33E-11	
t Critical two-tail	1.996009	

	<i>Mat</i>	<i>Vacuum</i>
Mean	9.912493	9.43067417
Variance	0.135422	0.343362888
Observations	68	68
Pearson Correlation	0.277748	
Hypothesized Mean Difference	0	
df	67	
t Stat	6.631181	
P(T<=t) one-tail	3.44E-09	
t Critical one-tail	1.667916	
P(T<=t) two-tail	6.89E-09	
t Critical two-tail	1.996009	

Relationship of iron in soil and mat samples



Relationship of iron in soil and vacuum bag samples



t-Test: Paired Two Sample for Means

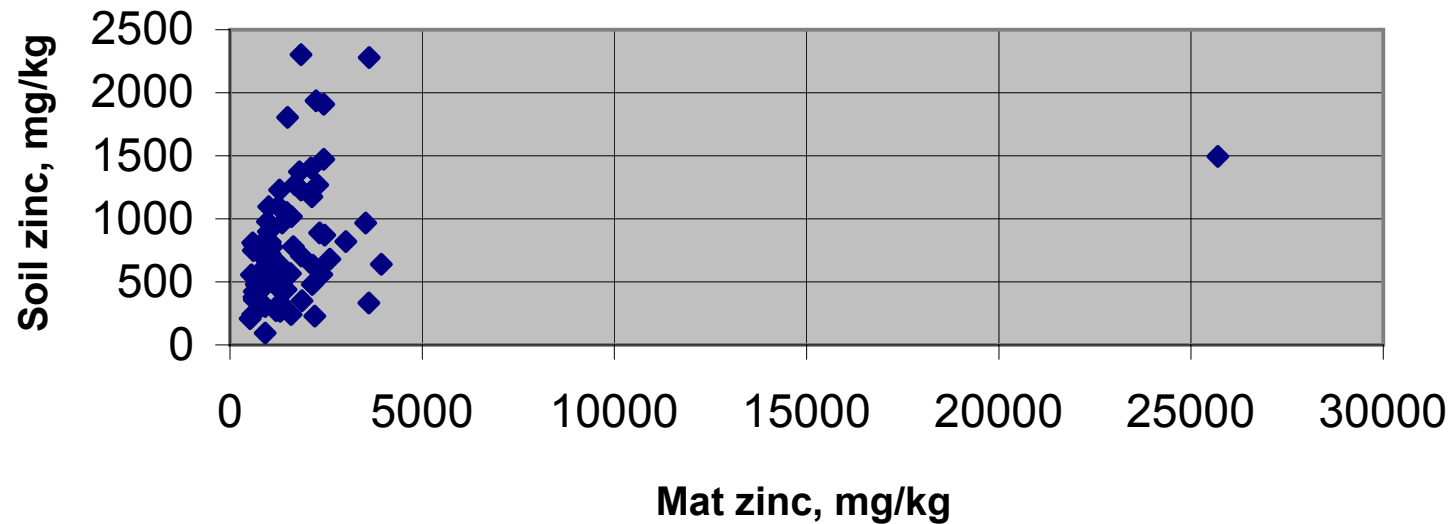
Zinc

	<i>Mat</i>	<i>Surface Soil</i>
Mean	7.23734	6.547255113
Variance	0.365593	0.37256025
Observations	82	82
Pearson Correlation	0.376804	
Hypothesized Mean Difference	0	
df	81	
t Stat	9.213368	
P(T<=t) one-tail	1.5E-14	
t Critical one-tail	1.663884	
P(T<=t) two-tail	3.01E-14	
t Critical two-tail	1.989688	

	<i>Vacuum</i>	<i>Surface Soil</i>
Mean	6.981535	6.506867644
Variance	0.360555	0.362876917
Observations	74	74
Pearson Correlation	0.291337	
Hypothesized Mean Difference	0	
df	73	
t Stat	5.702765	
P(T<=t) one-tail	1.18E-07	
t Critical one-tail	1.665996	
P(T<=t) two-tail	2.35E-07	
t Critical two-tail	1.992998	

	<i>Mat</i>	<i>Vacuum</i>
Mean	7.230723	6.981534516
Variance	0.373734	0.360555141
Observations	74	74
Pearson Correlation	0.409097	
Hypothesized Mean Difference	0	
df	73	
t Stat	3.25408	
P(T<=t) one-tail	0.000862	
t Critical one-tail	1.665996	
P(T<=t) two-tail	0.001725	
t Critical two-tail	1.992998	

Relationship between zinc in soil and mat samples



Relationship between zinc in soil and vacuum bags

